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Joint Photographic Experts Group(Jpeg) Image Compression With The Discrete Cosine Transform (DCT)

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JOINT PHOTOGRAPHIC EXPERTS GROUP(JPEG) IMAGE COMPRESSION WITH THE DISCRETE COSINE TRANSFORM (DCT)

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Image compression allows for faster transmission of digital media and significantly reduces necessary storage space for such data. The JPEG format currently supports black and white, grayscale, and full color two-dimensional images. JPEG has quickly become an industry standard for image compression, and its proliferation is highly evident in the Internet world and in other forms of e-published media. Due to the evolving nature of technology, the Joint Photographic Experts Group oversees research to improve its image format.

My research investigates 2-D image processing using the Discrete Cosine Transform (DCT) along with the advantages and disadvantages of particular technologies and algorithms currently implemented on an international scale. The DCT is similar in mathematical structure and composition to the Fast Fourier Transform (FFT), as studied in Peter Hamburger's Honors Integrated Calculus and Analytic Geometry class during the 2001-2002 academic year.